

ABSTRACT

A liquid crystal display (LCD) realizes a high brightness by using cholesteric liquid crystal (CLC) in a color filter and a polarizer, and improves viewing angles by using a hologram diffuser. The LCD includes a back light unit to produce and supply light, and a collimating sheet to collimate the light supplied by the back light unit. A CLC polarizer transmits left-circularly polarized light from the collimating sheet, and reflects other light. A lower substrate is disposed above the CLC polarizer, and an upper substrate is disposed above the lower substrate and includes a holographic diffuser which diffuses light without altering a polarization of the light. A liquid crystal layer is disposed between the lower substrate and the upper substrate, and a color filter layer which transmits only predetermined wavelengths of light is also disposed between the lower substrate and the upper substrate. An upper linear polarizer is located above the upper substrate. Accordingly, the LCD provides enhanced viewing angles via the holographic diffuser. Also, the LCD realizes high brightness via the CLC diffuser and a CLC color filter layer.